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THE INSECT PEST SURVEY
BULLETIN

A periodical review of entomological conditions throughout the United States
issued on the first of each month from March to December, inclusive.

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INSECT PEST SURVEY BULLETIN

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OUTSTANDING ENTOMOLOGICAL FEATURES IN THE UNITED STATES FOR JULY, 1928

The grasshopper outbreak anticipated in the last number of the Survey bulletin has developed to quite serious proportions in western South Dakota, Nebraska, and Kansas.

Throughout the greater part of the country cutworms continued to be of but little importance during July. During the latter part of June and the early part of July, however, an unusual amount of damage was occasioned by them in Maine and quite a severe outbreak developed on the overflowed land in the northern Willamette Valley in Oregon.

The fall armyworm became extremely abundant in parts of Texas during the first week in the month and about the middle of the month it was reported as doing serious damage in many localities in Mississippi.

The rose chafer appears to be unusually troublesome this season in several more or less isolated localities in the Northern and Central States, reports of serious damage having been received from New York, Indiana, Wisconsin, and Nebraska.

The abnormally large number of wireworm reports recorded in the last number of the Survey bulletin is augmented this month by reports of heavy damage from Maine, New York, Kansas, and Nebraska.

Since the low ebb in abundance of chinch bugs, which occurred between 1917 and 1919, this insect has not reached so low a population record as is reported this year.

The wheat stem maggot is appearing in epidemic form in South Dakota, Nebraska, and Kansas. The wheat joint worm and the wheat sheath worms are both very materially increasing in numbers in Ohio.

The sugarcane borer appears to be abnormally scarce this year in the cane section of Louisiana.

The codling moth adults of the first brood are emerging considerably later than last year in the Ohio River Valley and East Central

States. Illinois reports this insect two weeks later than last year and the Ohio records are approximately three weeks later.

The Oriental peach moth continues to be at a low ebb throughout the greater part of its range. It is now recorded as far east as Fredonia in New York and has been definitely located at Lake City in Spott.

Although the plum curculio still continues to be subnormally abundant throughout the greater part of the Eastern States, present conditions in Georgia indicate that there will be a heavier population after the peach season this year than has occurred for several years owing to poor weather conditions interfering with effective spraying, and reports from Illinois indicate that this insect is above normal in the southern part of the State.

Throughout the raspberry-growing section extending from Ohio and New York into Ontario the raspberry sawfly is doing very considerable damage.

A rather serious grape root worm outbreak developed in New York State and extended into Berrien County, Michigan.

The strawberry root aphid has increased so rapidly in the strawberry-growing section near Chadbourn, N. C., that it is a serious economic factor in that region.

Although the early indications were that the Mexican bean beetle would be subnormally abundant in the originally infested areas, because of low winter survival, subsequent conditions have caused this insect to increase enough to offset the winter loss. During the month the insect spread rapidly across eastern Maryland.

The elm leaf beetle appeared in serious numbers at Troy and in the suburbs of Dayton. This pest appears to be confined to the Miami Valley in the southeastern part of Ohio. No reports have been received from other States this year.

The usual number of reports on termite damage were received this month.

OUTSTANDING ENTOMOLOGICAL FEATURES IN CANADA FOR JULY, 1928.

Reports indicate that the onion maggot is more troublesome than usual in Ontario, sections of New Brunswick, and in southern Saskatchewan and Manitoba.

The outbreak of the roadside grasshopper, Camnula pellucida Scud., is affecting range grasses and grain crops at Riske Creek, Gang Range, Alkali Lake, Dog Creek, and Big Bar Range, and Stump Lake in the Nicola

Valley, British Columbia. Over most of the province, outside of the above areas, there has been much rain and no grasshoppers are in evidence.

Wireworms are more abundant than usual in Ontario on a variety of field crops.

Reports indicate that the rose chafer is less abundant than in former years in southern Ontario.

The potato flea beetle is prevalent throughout the St. John River Valley region, New Brunswick, but scarce along the Northern Strait and Miramichi Valley region.

Garden slugs of the species Agriolimax agrestis are present in serious numbers in field and garden crops in the Agassiz and Chilliwack Valleys, British Columbia.

The raspberry sawfly has rarely, if ever, been more injurious in raspberry plantations in the Niagara district, Ontario.

The cigar case bearer has increased in abundance in Ontario over last year and occurs almost all over the province in neglected orchards, in some of which almost every leaf is attacked. It is reported as very prevalent in orchards in the Annapolis Valley, Nova Scotia.

The species Laspeyresia packardi Zell. has become a serious pest in sour cherries, in recent years, in the Saanich district, Vancouver Island, British Columbia.

No heavy infestation of the green apple aphid has been seen anywhere in Ontario this season. Last year one of the worst outbreaks on record occurred.

The fruit tree leaf roller is much more abundant in Ontario this year than usual and is found in almost every county where fruit is grown to any appreciable extent. The eye-spotted budmoth is also more abundant than usual throughout the fruit districts of the province.

The satin moth occurs over the entire Lower Fraser Valley and over the east coast of Vancouver Island, British Columbia. The infestation is very serious this year, especially on native cottonwood. It is attacking all species of poplars and is also very noticeable on native willows.

The lilac leaf miner Gracilaria syringella Fab., now appears to be established throughout Ontario.

The spruce budworm has heavily infested Douglas fir in certain sections of Vancouver Island, British Columbia.

Cankerworms have been present in abundance in the Annapolis Valley, Nova Scotia, and have completely stripped many unsprayed orchards.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Ohio T. H. Parks (July 23): Grasshoppers are not an economic pest in Ohio this year; very few are noticed in meadows and pastures.
- South Dakota H. C. Severin (July 12): A grasshopper outbreak has started in Brule, Buffalo, and Lyman Counties, judging from the number of reports received.
- Nebraska M. H. Swenk (June 15-July 15): Grasshoppers (Melanoplus spp.) continued to be reported from the area in western Nebraska mentioned in my last report during the period here covered.
- Kansas J. W. McColloch (July 20): Grasshoppers continue to be a problem in several of the northwestern counties of the State.

SHORT-TAILED CRICKET (Anurogryllus muticus DeG.)

- Mississippi R. W. Harned (July 27): Specimens tentatively identified by J. M. Langston as Anurogryllus muticus were received July 9 from Rankin County. The correspondent reported that these insects were causing serious injury to cowpeas and other crops.

CUTWORMS (Noctuidae)

- Maine J. H. Hawkins (July 13): Cutworms had done serious injury to peas and tomatoes at Lamaine Beach when observed June 20. The red-backed cutworm, Euxoa ochrogaster Gn. was the main offender. Cabbage was also destroyed by this insect at Newport during the week of June 25. Corn had been cut off at Monmouth by this insect and by the greasy cutworm, Agrotis ypsilon Rott., on July 1. At Cape Elizabeth on July 6, both the red-backed cutworm and the greasy cutworm were present eating the leaves from cabbage and cutting them off at their bases or eating out the small heads.
- New York F. B. Morris (July 18): Sporadic damage on lettuce in Oswego County.
- J. G. Gaines (July 18): Cutworms causing slight to moderate injury on many crops in Wayne County.
- Indiana J. J. Davis (July 27): What we determined as Septis (Hadena) arctica Bdv., caused considerable damage to corn at Winamac July 1.
- South Dakota H. C. Severin (July 12): Cutworms were not so abundant as usual this year.

Oregon L. P. Rockwood (July 7): On land overflowed until about May 20, moths of Agrotis ypsilon Rott., oviposited in mud immediately after the water drained off. First damage noted on June 23. Locality called Uapoto Lake, Washington County. Estimated damage to date being 6 acres of oats and 30 per cent of the buckwheat.

ARMYWORM (Cirphis unipuncta Haw.)

Michigan R. H. Pettit (July 24): Armyworms were found in Gladwin and Osceola Counties. Only a few specimens have been sent in and no reports as to the injury.

FALL ARMYWORM (Laphygma frugiperda S. & A.)

Mississippi R. W. Harned (July 27): During the past week reports have been received from several counties stating that the southern grassworm Laphygma frugiperda, was destroying young corn in many fields. It was first reported from Calhoun County on July 16, the next day from Choctaw, and the next from Yalobusha. Grassworms have been reported from Hinds, Alcorn, Lee, Oktibbeha, DeSoto, Chickasaw, Prentiss, and Monroe Counties. The worms are probably present in several other counties, and there is a possibility that the next generation may cause considerable damage as very few of the worms have been parasitized.

Texas F. L. Thomas (July 9): The worms are abundant throughout a 20 acre field at College Station.

WHITE GRUBS (Phyllophaga spp.)

Indiana J. J. Davis (July 27): White grubs were reported abundant at Crown Point June 29 and damaging strawberry at Summitville July 11.

Illinois C. C. Compton (July 5): White grubs of brood A have been more persistent than usual in their attack on corn in Grundy County. Grubs are still working in corn that had been replanted June 10. Favorable weather for corn planting the early part of May encouraged farmers to plant corn in a season when planting should have been delayed.

Nebraska M. H. Swenk (June 15-July 15): In Knox, Antelope, Holt, and Rock Counties hundreds of acres of hay meadows, lying in the richer and lower parts of the fields that ordinarily are the best grass-producing areas, were destroyed by white grubs during the period covered by this report. The situation is so serious in this region that there is danger of a hay shortage and the resulting forced sale of livestock in certain localities.

ROSE CHAFER (Macrodactylus subspinosus Fab.)

New York

C. R. Crosby and assistants (July): Very serious injury to fruit and truck as well as ornamentals in parts of Wayne County has been reported this year, also slight damage in Orange and Greene Counties. (abstract J.A.H.)

Indiana

J. J. Davis (July 27): The rose chafer was reported from various sections of the State between June 28 and July 5 as follows: From Winamac comes the report that they were abundant throughout Pulaski County; defoliating young apple and plum tree at Monterey; present by the millions and devouring every green apple in a 10-acre orchard at Ray; and abundant at Crown Point.

Wisconsin

E. L. Chambers (July 25): Specimens of the rose chafer have been received from a dozen or more sources in southern counties where they have been reported as doing considerable feeding on the foliage of raspberries and to some extent injuring corn. Monroe County seems to have had more trouble than usual this year from this insect.

Nebraska

M. E. Swenk (June 15-July 15): The rose chafer appeared in great numbers in the sand-hill region of Nebraska from Cherry County and Thomas County to Grant County during the period June 19 to 26 and did the usual amount of injury to fruit and other trees, bushes, shrubs, and garden stuff.

WIREWORMS (Elateridae)

Maine

J. H. Hawkins (July 13): We have found that clover baits were effective in attracting the adults of the wheat wireworm Agriotes mancus Say and give some promise as an auxiliary method of controlling these pests. Wheat wireworms were found April 18 at Holden in the first 6 inches of soil, although the ground was still frozen beneath the top layer of 6 or 8 inches. Reports of wireworm injury to potato seed pieces during June were received from Warren, Wiscasset, and Newport. Potatoes were so badly injured on a farm at Cape Elizabeth that replanting was necessary.

New York

F. B. Morris (July 18): Wireworms caused much damage in some cornfields; in one case 60 per cent being destroyed in Oswego County.

J. G. Gaines (July 19): Only a trace of injury on many crops in Wayne County.

Nebraska

M. H. Swenk (June 15-July 15): Corn wireworms (Melanotus cribulosus Lec. and others were unusually injurious to corn during the first half of July. In some fields the loss of stand

was quite serious. The trouble was most prevalent in the area from Clay and Hamilton Counties north to Merrick and Valley Counties.

Kansas

J. W. McColloch (June 26): Corn is being injured by wire-worms on a farm at Oswego. Damage has occurred for several years.

JAPANESE BEETLE (Popillia japonica Newm.)

New Jersey and
Pennsylvania

Monthly Letter of the Bureau of Entomology No. 170, June, 1928: At the present time five species of Oriental parasites of the Japanese beetle are established in New Jersey, there being two species of Tiphia and one each of Centater, Dexia, and Prosenia, Tiphia vernalis was recently recovered for the first time from a colony that was established two years ago. The same species has been recovered from three colonies established last year. Dexia ventralis has been recovered in both this year and last year, from the first colony established. Twenty-three thousand Tiphia cocoons have been received this year from India, and a shipment of 3,000 adult Tiphia vernalis from Japan arrived in good condition, with 42 per cent alive. Five thousand Prosenia sibirita were received from Japan on parasitized grubs. The larval surveys conducted during the late spring and early summer of the present year at numerous stations within the heavily infested area indicate a marked reduction of Japanese beetle population at all stations where the beetle has been long established, and a decided increase in the newer stations.

CEREAL AND FORAGE-CROP INSECTS

WHEAT AND OATS

HESSIAN FLY (Phytophaga destructor Say)

Ohio

T. H. Parks (July 21): The survey just completed in Ohio this year shows Hessian fly less abundant over the State as a whole than a year ago. It has increased rapidly in the southwestern quarter of the State, remains nearly the same as last year in the northeast, but has decreased very much in the northwestern quarter. The average for the State this year is 13 per cent of the straws infested, compared with 20.6 per cent a year ago. The infestations by counties range from 1 per cent in Ottawa and Sandusky Counties to 32 per cent in Stark County located in eastern Ohio where considerable wheat was sowed early last fall.

The rapid increase has come about in southwestern counties even though practically no wheat was sowed early. Economic damage from the insect was confined to a few northeastern counties. An unusual thing about this survey is that the infestation in individual fields within the same county varied from

none to 60 per cent.

The record by counties was as follows:

N. W.		N. W.	
Counties	Per cent	Counties	Per cent
Fulton	28	Hancock	7
Henry	10	Sandusky	1
Wood	3	Ottawa	1
Allen	10	Mercer	15
N. E.		N. E.	
Counties	Per cent	Counties	Per cent
Portage	12	Wayne	18
Medina	22	Stark	32
Ashland	22	Holmes	23
S. W.		S. W.	
Counties	Per cent	Counties	Per cent
Butler	16	Pickaway	9
Highland	17	Franklin	9
Clinton	15	Clarke	10
Clermont	9	Miami	16
Ross	2	Darke	22

Nebraska

M. H. Swenk (June 15-July 15): Present indications are that there is a general but light infestation of the wheat stubble with the Hessian fly over southeastern Nebraska, and because of the abundance of rainfall that we are having and the heavy volunteer wheat growth that is developing, the situation is being most carefully followed.

CHINCH BUG (Blissus leucopterus Say)

Nebraska

M. H. Swenk (June 15-July 15): The chinch bug did no commercial damage to crops in Nebraska this year. Not since the very low obbin abundance of the chinch bug during the years 1917 to 1919 has there been so little evidence of this pest as during the present summer.

ENGLISH GRAIN APHID (Macrosiphum granarium Kby.)

Nebraska

M. H. Swenk (June 15-July 15): In Nance County, during the third week in June, oat fields were found heavily infested with the English grain aphid which was found working over into adjacent corn fields also, in some places.

WHEAT-STEM MAGGOT (Meromyza americana Fitch)

Nebraska

M. H. Swenk (June 15-July 15): Reports of the wheat-stem maggot causing injury to wheat heads continued to be received

up to June 28 from localities ranging north to Pierce County and west to Scotts Bluff County.

South Dakota

H. C. Severin (July 12): The wheat-stem maggot was more abundant than usual this year in our wheat.

Kansas

J. W. McColloch (June 23): Wheat received from Greensburg was heavily infested with this species. The farmer reports 15 to 33 per cent of his crop infested.

WHEAT-HEAD ARMYWORM (Neleucania albilinea Hbn.)

Illinois

W. P. Flint (July 21): This insect has been reported in several of the northwest-central counties of Illinois. In every case it was sent in or reported from timothy. This insect is rarely reported from any other section of Illinois.

WHEAT JOINT WORM (Harmolita tritici Fitch)

Ohio

T. H. Parks (July 23): Wheat joint worm has increased greatly in the southern half of the State over that found last summer. No damage was done this year, but the insect is increasing rapidly. More numerous than in an average year.

WHEAT SHEATH WORM (Harmolita vaginicola Doane)

Ohio

T. H. Parks (July 23): This insect has increased in abundance in the central counties. Many fields have from 3 to 6 per cent of the straws infested, while one field in Crawford County has 11 per cent infested. These infested straws are quite noticeable before the wheat is harvested. I attribute this largely to the late development of the plants this spring.

CORN

STALK BORER (Papaipema nebris nitela Gn.)

New York

W. H. Freeman and E. Kostal (July 14): The stalk borer is especially common and destructive in the vicinity of Tottenville, Staten Island. The following plants have been found infested: Marigold, tomato, sweet corn, and dahlia. A small stand of sweet corn about to enter the tassel stage showed about 20 per cent infestation.

G. H. Salisbury (July 23): Tomatoes have been attacked by stalk borers in Chautauqua County.

Indiana

J. J. Davis (July 27): The stalk borer has been common throughout the State, but not so destructive, apparently, as in 1926 or 1927. It was repeatedly sent in as possibly the European corn borer. Injury was reported to wheat from Ambia and Lafayette,

June 27; to barley at Albion, July 10; to oats near Indianapolis, July 7; to corn at Frankfort, Logansport, Hartford City, Lowell, Atlanta, Attica, North Liberty, Linden, Thorntown, New Richmond, DePauw, Greenfield, Rockville, Waynetown, and Stendal between July 3 and 25; to potato at Camden and Gasten, July 13; to tomatoes at Greensburg and Camden, July 6 and 13, respectively; to dahlias and zinnias at Greensburg, July 6; to mint, which was appreciably damaged, at Kimmel, July 10; in ragweed at Greenfield, July 25; to hollyhocks and dahlias at Waynetown, July 27.

Illinois

W. P. Flint (July 21): As has been the case for the past several seasons, large numbers of the common stalk borer are being received daily. In most cases these insects are sent in with the thought that they may be the European corn borer.

Wisconsin

E. L. Chambers (July 25): Many specimens of the stalk borer have been received during the past week. It was reported by several correspondents as being unusually injurious to hollyhocks and one report stated that it was playing havoc with beans.

Kansas

J. W. McColloch (July 20): The common stalk borer is again causing considerable damage to corn in Kansas. Rainy weather and heavy weed growth last year are partly responsible. About the same in abundance as compared with an average year.

South Dakota

H. C. Severin (July 12): Sent in with the fear it might be the European corn borer. Damage being very small in the eastern half of the State.

Nebraska

M. H. Swenk (June 15-July 15): The stalk borer was frequently sent in for identification, or its injuries were complained of during the last half of June and the first half of July. These reports have come in from all parts of the eastern one-third of the State.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

New York

M. N. Taylor (July 23): At present there is no injury from the European corn borer in Erie County.

SMARTWEED BORER (Pyrausta ainsliei Heinr.)

Wisconsin

E. L. Chambers (July 25): Several abandoned fields having large patches of smartweeds were found heavily infested with this borer at Dane.

Nebraska

M. H. Swenk (June 15-July 15): During the past few years we have received literally hundreds of caterpillars of various species with the inquiry, "Is this the European corn borer?"

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana

T. E. Holloway and W. E. Haley (June 29): From our own observations and from reports from reliable observers the sugarcane moth borer is extraordinarily scarce this year. Fields of corn and sugarcane have been examined and no borers found. An infestation of 20 per cent of the stalks in a cornfield is the greatest infestation of which we have heard.

The egg parasite Trichogramma minutum Riley has not been found so far under natural conditions.

J. W. Ingram (July 21): Borer damage to early varieties of rice in southwestern Louisiana has been small this season. These varieties are now headed and very few dead heads resulting from borer damage have been found at Crowley.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

Mississippi

R. W. Harned (July 27): A correspondent at Wiggins in Stone County reported on July 15 that the lesser corn stalk borer had completely destroyed a 10-acre field of young corn. A correspondent at Hattiesburg, Forrest County, reported on July 23 that injury by this insect was noticeable in many cornfields in that vicinity. Rather serious injury to beans by it was reported from Kreole, Jackson County, July 13.

LARGER CORN STALK BORER (Diatraea zeacolella Dyar)

South Carolina

M. H. Brunson (July 10): The larger corn stalk borer has been reported damaging corn. The larvae of a corn billbug belonging to the genus Sphenophorus was found in most cases associated with it.

LINED CORN BORER (Hadena fractilinea Gröte)

Wisconsin

E. L. Chambers (July 25): Several reports have been received from the southeastern part of the State to the effect that the lined stalk borer was appearing in patches of corn and doing serious injury for a while but have now pupated. A large number of specimens were sent in by the county agent of Monroe County for identification.

South Dakota

H. S. Severin (July 12): This insect was sent in many times from the eastern half of the State.

CORN ROOT APHID (Anuraphis maidi-radici Forbes)

Kansas

J. W. McColloch (July 12): Corn injured by this species was received from LaCygne.

CORN LEAF APHID (Aphis maidi Fitch)

Mississippi R. W. Harned (July 27): Corn plants rather badly infested with Aphis maidi were received from Mount Olive, Covington County, June 28.

CORN BILLBUGS (Sphenophorus spp.)

South Carolina M. H. Brunson (July 10): A number of species of corn billbugs belonging to the genus Sphenophorus have been more numerous and have done more damage to corn than usual in the east-central part of the State.

Indiana J. J. Davis (July 27): Corn billbug injured plants were received from Logansport, July 3. However, this was old injury the plants being badly riddled and with distorted tillering.

Kansas J. W. McColloch (July 15): A bad infestation of Sphenophorus maidis was found in a field of corn on the Kansas river near Manhattan.

CORN SILK BEETLE (Luperodes varicornis Lec.)

Mississippi R. W. Harned (July 27): Beetles belonging to the genus Luperodes probably varicornis have attracted considerable attention in corn and cotton fields in a few counties during the past few weeks. Serious injury to corn and cotton by these beetles was reported from Marshall County on July 7 and from Tishomingo County a few days later.

THRIPS (Thysanoptera)

Maine J. H. Hawkins (July 13): Thrips, which were present in corn in the St. Albans neighborhood last year, are again present and are a serious pest in sweet corn planted for canning.

SOY BEANS

STRIPED BLISTER BEETLE (Epicauta vittata Fab.)

North Carolina C. H. Brannon (June 29): Reported by Hugh Overstreet, county agent, as ruining fields of soy beans in Carteret County.

A BLISTER BEETLE (Epicauta lemniscata Fab.)

Louisiana J. W. Ingram (July 7): Blister beetles appeared in a number of soy bean fields around Crowley during the first week of July.

BANDED FLEA BEETLE (Systema taeniata Say)

Indiana J. J. Davis (July 27): Systema taeniata destroyed 3 acres of soy beans at Clinton July 7.

F R U I T I N S E C T S

EUROPEAN RED SPIDER (Paratetranychus pilosus C. & F.)

New York C. R. Crosby and assistants (July): This insect is decidedly subnormal throughout the western fruit-growing counties. (abstract J. A. H.)

FALSE TARNISHED PLANT BUG (Lygus invitus Say)

New York C. K. Bullock (July 14): In Ontario County this insect was very serious in parts of a few orchards.

E. E. Frane (July 10): Slight injury in some pear orchards in Wayne County.

F. B. Morris (July 18): Present in some orchards in Oswego County.

APPLEAPPLE APHID (Aphis pomi DeG.)

New York C. R. Crosby and assistants (July): Early in the month this insect became decidedly numerous in the southeastern part of the State, and by the middle of the month serious curling was observed in Clinton, Ulster, Greene, and Columbia Counties. Throughout the rest of the State this insect remains very scarce. (abstract J. A. H.)

ROSY APPLE APHID (Anuraphis roseus Baker)

New York C. R. Crosby and assistants (July): In the southeastern part of the State the rosy apple aphid put in its appearance about the middle of the month and did some damage in a few orchards, as indicated by reports from Orange and Ulster Counties. In the western part of the State it was a negligible factor. (Abstract J.A.H.)

Illinois S. C. Chandler (July 21): Severe and late injury has occurred in southern Illinois from rosy apple aphid.

CODLING MOTH (Carpocapsa pomonella L.)

New York C. R. Crosby and assistants (July): In the eastern part of the State eggs began hatching early in the month, and by the middle

of the month considerable damage was reported from Greene County, though in general but little sideworm was observed throughout the month. In Clinton County considerable sideworm injury was observed on the 16th, and in the western part of the State sideworm injury became quite conspicuous late in the month. (abstract J.A.H.).

Georgia

E. Lee Worsham (July 23): The codling moth is not so abundant as last year. The egg parasite Trichogramma minutum Riley has been introduced in the apple growing region of northern Georgia and about 95 per cent have emerged. The introduction is very successful so far as can be told at this time.

Ohio

T. H. Parks (July 23): Emergence of the spring brood of moths occurred at Columbus rather regularly between May 18 and July 9. Worms began leaving the fruit the week of July 10, with the first pupa observed July 15. Spraying is advised for central Ohio during the last week of July. The brood is much lighter than usual in the southern half of the State, with a very few worms being taken under the bands by L. A. Stearns in Lawrence County.

Illinois

S. C. Chandler (July 21): Codling-moth adults of the first brood are now emerging in central and southern Illinois. Emergence started in southern Illinois on July 9 and in central Illinois July 14. This is nearly two weeks later than normal. While the first brood worms were not so abundant as usual, unsprayed orchards show an average infestation of from 15 to 20 per cent, and with favorable weather it is possible that this infestation will reach close to 100 per cent before the end of the season. The last moths from overwintering larvae emerged June 26 at Carbondale,

Nebraska

M. H. Swenk (June 15-July 15): The first brood of the codling moth began its emergence at Lincoln on July 13, about a week after the disappearance of the last moths of the spring brood in our rearing cages.

Washington

E. J. Newcomer (July 4): First-brood moths began appearing at Yakima July 4. The first spray for the second brood of worms should thus be completed by July 12. On account of the protracted warm spell in May it was suggested in the June Bulletin that a higher percentage of wormy apples might result than usual; present indications are that this will not be the case, the warm weather having been followed by a long period of abnormal cool, windy weather, which apparently offset the effect of the warm weather.

FRUIT TREE LEAF ROLLER (Archips argyrospila Walk.)

New York

C. R. Crosby and assistants (July): This insect is unusually prevalent throughout the State, even doing extensive damage in well-sprayed orchards. It is particularly serious on pears. (abstract J.A.H.)

CASE BEARERS (Coleophora spp.)

New York

C. R. Crosby and assistants (July): Case bearers were generally of little importance except in orchards where arsenicals were omitted from the first spray. C. fletcherella Fern. was more prevalent than C. malivorella Riley. (abstract J.A.H.)

APPLE AND THORN SKELETONIZER (Hemerophila pariana Clerck)

New York

C. R. Crosby and assistants (July): The apple and thorn skeletonizer is present in normal numbers in Wayne, Onondaga, Dutchess and Orange Counties. In Ontario and Genesee Counties they did considerable damage during the month. (abstract J.A.H.)

EYE-SPOTTED BUD MOTH (Spilonota ocellana Schiff.)

New York

C. R. Crosby and assistants (July): The eye-spotted bud moth has been decidedly more serious this year than in many years, reports having been received from practically all the central and western counties of serious damage, in some cases even where good spray practices have been followed. (abstract J.A.H.)

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

New York

C. R. Crosby and assistants (July): The eastern tent caterpillar was very abundant in practically all unsprayed orchards in the western part of the State. The first eggs of the second generation were observed in Dutchess County on July 12. (abstract J.A.H.)

Ohio

E. W. Mendenhall (July 21): Tent caterpillars are quite numerous on apple and other trees in southwestern Ohio.

FALL WEBWORM (Hyphantria cunea Drury)

New York

E. E. Frane (July 16): Fall webworms were seen in two orchards in Wayne County.

C. K. Bullock (July 23): Fall webworms are hatching and spinning their webs in Ontario County.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

New York

C. R. Crosby and assistants (July): Adults of the apple maggot began emergence in the southeastern part of the State during the last week in June and the first week in July. Emergence apparently reached its peak in this part of the State by the middle of the month, though it was generally heavy throughout the third week of July. (abstract J.A.H.)

BUFFALO TREEHOPPER (Ceresa bubalus Fab.)

New York

W. E. Field (July 18): Trees injured in two uncultivated orchards in Onondaga County.

A. B. Burrell (July 23): Adults of the Buffalo treehopper were first observed July 20 in Clinton County. This insect does economic injury in this territory to young apple trees in sod, and especially to those in alfalfa sod. Attempts made two years ago to prevent oviposition of this pest by painting the trunk and branches of young trees were unsuccessful.

APPLE FLEA WEEVIL (Orchestes pallicornis Say)

Ohio

T. H. Parks (July 23): For the first time the apple flea weevil has damaged foliage on trees in many commercial orchards in southern Ohio. The apple orchards at Chillicothe have a heavy infestation with severe damage. Previous damage in Ohio had been confined to Delaware County where the insect has been present for a number of years. Presence of the insect in the hill orchards of the county prevents cultivation, which is the only control method known.

CRANBERRY ROOT WORM (Rhabdopterus picipes Oliv.)

New York

E. E. Frane (July 10): Slight injury in several apple orchards but much less than a few years ago in Wayne County. (July 16): The cranberry root worm beetle caused less damage on apples than usual this year in Wayne County. Its work was found on the foliage of several weeds, as well as apple and cherry foliage. Only a few apples were found which had been attacked.

ROUND-HEADED APPLE TREE BORER (Saperda candida Fab.)

New York

W. E. Field (July 18): Not causing much trouble in Onondaga County.

Ohio

E. W. Mendenhall (July 19): The round-headed apple tree borer is quite bad in some of the commercial orchards in

Montgomery County.

APPLE REDBUG (Lygidea mendax Reut.)

New York

E. E. Frane (July 10): Abundant in the southern part of Wayne County in some orchards, and present in a few orchards in the northern half of the county.

W. E. Field (July 16): Severe injury from redbug was noted in one orchard in Onondaga County where nicotine was omitted from the calyx spray. (July 18): Generally abundant in Onondaga County and serious in one orchard.

APPLE LEAFHOPPER (Empoasca mali LeB.)

New York

C. R. Crosby and assistants (July): Throughout the greater part of the New York fruit-growing section leafhoppers were unusually abundant, as high as 87 per cent of the leaves showing injury during the first week in the month and depredations continued throughout the month. (abstract J.A.H.)

GREEN APPLE LEAFHOPPER (Empoa unicolor Fitch)

New York

A. S. Mills (July 2): The green apple leafhopper E. unicolor has reached the 4th and 5th stages and is abundant in a few orchards in Greene County. (July 16): A few adults of E. unicolor are now present in the orchards. E. unicolor are much less abundant than Typhlocyba pomaria this year in Greene County.

SCURFY SCALE (Chionaspis furfura Fitch)

New York

E. E. Frane (July 10): Present in two apple orchards in Wayne County.

F. B. Morris (July 18): A few were found in some pear orchards in Oswego County.

PEAR

PEAR PSYLLA (Psyllia pyricola Foerst.)

New York

C. R. Crosby and assistants (July): Early in the month egg-laying was well under way, reports having been received from Ulster and Ontario Counties on July 2. In the western part of the State the insect was generally very scarce and indications were that no further spraying would be necessary for this insect. In the eastern part of the State in Orange and Dutchess Counties there was a decided increase by the middle of the month and the insect was very abundant during the third week in July. (abstract J.A.H.)

PEAR LEAF BLISTER MITE (Eriophyes pyri Pgst.)

New York

E. E. Frane (July 10): Abundant in some pear and apple orchards in Wayne County.

C. K. Bullock (July 14): Not so abundant as last year in Ontario County.

F. B. Morris (July 18): Some present in all pear orchards in Oswego County.

Mississippi

R. W. Harned (July 27): Apple leaves badly infested with the pear leaf blister mite have been received during the past week from Yazoo and Tate Counties.

PEAR MIDGE (Contarinia pyrivora Riley)

New York

R. L. Payne (July 2): Pear growers in Genesee County report an average crop, except in the eastern part of the county where pear midge caused about a 50 per cent loss.

PEAR THRIPS (Taeniothrips inconsequens Uzel)

New York

E. E. Frane (July 10): Not enough to do damage in Wayne County. Parker's record earlier in the season very doubtful.

W. E. Field (July 18): Present in some orchards in Onondaga County but not causing injury.

PEAR SLUG (Eriocampoides limacina Retz.)

New York

C. R. Crosby and assistants (July): The pear slug, in general, is doing but little damage, the only reports coming from poorly cared-for and unsprayed orchards. (Abstract J.A.H.)

Ohio

E. H. Mendenhall (July 3): Pear and cherry trees are badly infested with pear slugs which are doing some damage to orchards in the central and southwestern part of Ohio.

QUINCE

QUINCE CURCULIO (Conotrachelus crataegi Walsh)

New York

Ray Bender (July 2): Quince curculio work is showing up on quinces in Dutchess County.

C. K. Bullock (July 14): Very little injury on pears in Ontario County. Restricted to one or two orchards.

PEACH

LESSER PEACH TREE BORER (Sesia pictipes G. & R.)

New York

E. E. Frane (July 10): Troublesome around brown rot cankers in old orchards in Wayne County.

C. K. Bullock (July 14): Present in some orchards where there are brown rot cankers in Ontario County.

ORIENTAL PEACH MOTH (Laspeyresia molesta Busck)

New York

E. J. Hambleton (July 2): Some twig and fruit injury by the oriental peach moth larvae has been noticeable for some time in Ulster County. One 2-year old orchard north of Kingston contained several infested fruits.

D. M. Daniel (July 16): The oriental peach moth infestations have been located as far east as Fredonia. Several orchards between Fredonia and Westfield show twig injury, and larvae were collected. Farthest point east last year was Westfield. To State Line the infestation is general but light.

South Carolina

Oliver I. Snapp (July 23): A definite record of the occurrence of this insect in South Carolina was established as a result of the determination of larvae in peach twigs sent to Prof. Franklin Sherman of Clemson College by Mrs. B. R. Furtick, of Lake City, S. C.

Georgia

Oliver I. Snapp and H. S. Swingle (July 20): The oriental peach moth infestation in middle Georgia is not more than ten per cent of what it was in 1927. It has suffered a great set-back this year. Some of the properties infested last year show no infestation this year, while others show only a light infestation where it was heavy a year ago.

E. Lee Worsham (July 23): The oriental peach moth has not been present nearly as much in northern Georgia as last year.

Ohio

E. W. Mendenhall (July 7): I find the oriental peach moth infesting peach and plum trees to some extent in Franklin County. The oriental peach moth was found in Montgomery County peach orchards but does not appear to be as bad as last year. At Columbus this moth caused some damage to peach. Found in Miami County to some extent. It shows up a little later this year. The damage does not seem to be very extensive.

Indiana

J. J. Davis (July 27): The oriental peach worm occurs in considerable abundance at New Albany. The writer visited four peach orchards in the vicinity of New Albany July 18 and found the insect present in all of the orchards. In two of these orchards the infestation is heavy and we estimate 90 to 100 per cent of the fruit will be infested by harvest.

GREEN PEACH APHID (Myzus persicae Sulz.)

New York

E. E. Frane (July 10): None observed in Wayne County.

COTTONY PEACH SCALE (Pulvinaria amygdali Ckll.)

New York

E. E. Frane (July 2): In Wayne County many of the ovi-sacks of the cottony scale are full of eggs on peach while others are just beginning to show a fringe of cotton. (July 10): Abundant in a few orchards but now under control in Wayne County.

A LACE WING (Corythuca sp.).

New York

E. E. Frane (July 2): Large numbers of hatched and unhatched lace wing eggs were seen in a peach orchard near the Lake in Wayne County.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

New York

C. R. Crosby and assistants (July): This insect is generally scarce throughout the State. (abstract J.A.H.)

Georgia

Oliver I. Snapp (July 20): Some scale spots have been observed on some of the fruit at Fort Valley. One complaint of a heavy infestation damaging trees has recently come to the laboratory.

CHERRY

CHERRY FRUIT FLY (Rhagoletis cingulata Loew.)

New York

C. R. Crosby and assistants (July): Emergence of the cherry maggot was practically completed by July 2 in the rearing cages in Wayne County. The flies in general were quite prevalent throughout the State but well controlled in all commercial orchards. (Abstract J.A.H.)

DARK CHERRY FRUIT FLY (Rhagoletis fausta O.S.)

New York

E. J. Hambleton (July 2): In Ulster County, in one trap which yielded R. fausta the cingulata species began to emerge on the 15th, 10 days later than records of other traps, and have not reached a peak to date.

PEAR SLUG (Eriocampoides limacina Retz.)

Indiana J. J. Davis (July 27): The cherry slug was abundant on cherry at Lafayette June 27 and at Winona Lake July 20.

CHERRY APHID (Myzus cerasi Fab.)

New York C. R. Crosby and assistants (July): The cherry aphid is decidedly below normal throughout the State. (abstract J. A. H.).

PEACH BARK BEETLE (Phthorophloeus liminaris Harr.)

Pennsylvania M. F. Curvell (July 2): Several trees in sweet cherry orchard dying apparently from attack of this insect in Erie County.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

New York E. E. Frane (July 10): One young cherry orchard injured in Wayne County near large wood pile from which the beetles emerged.

PLUM

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

New York C. R. Crosby and assistants (July): The plum curculio was about normally abundant, considerable injury being reported from poorly sprayed orchards throughout the State. (abstract J. A. H.)

Georgia Oliver I. Snapp (July 20): This insect caused considerable damage in some orchards during recent weeks at Fort Valley and some complaints of wormy fruit have reached the laboratory. Some rain has been recorded on one-half of the days since June 1, and that has materially interfered with the effectiveness of the insecticide used for the curculio. It has also facilitated the development of first-generation adults. These adults have been emerging from the soil in numbers for several weeks, but to date there have been no indications of a second brood. Practically all of the "worms" in peaches recently have been large ones, indicating that they are the progeny of overwintered females. The curculio population in Georgia peach orchards after the peach season will evidently be larger than it has been for some years.

E. Lee Worsham (July 23): Damage to peaches in northern Georgia by the plum curculio is very light compared with damage done in 1926 and 1927.

Illinois

S. C. Chandler (July 21): Curculio infestation has been heavier than usual in parts of southern Illinois. Many growers have applied as many as seven dust applications with arsenate of lead. More curculios have been jarred at Carbondale from unsprayed trees than any previous season. The first curculios emerged in cages from drop peaches were seen at Carbondale on July 10.

RUSTY PLUM APHID (Hysteroneura setariae Thos.)

Utah

George F. Knowlton (July 10): Aphids have been doing serious damage to plum trees this spring at Hyde Park, and northern Logan. Most of the leaves have become severely curled in many cases.

EUROPEAN FRUIT LECANIUM (Lecanium corni Bouche)

New York

E. E. Frane (July 10): Not causing much trouble in Wayne County.

C. K. Bullbuck (July 14): Abundant in a few plum orchards in Ontario County.

W. E. Field (July 18): Some present in plums in Onondaga County.

RASPBERRY

RASPBERRY FRUIT WORM (Byturus unicolor Say)

Wisconsin

E. L. Chambers (July 25): The raspberry fruit worm caused serious losses in several large raspberry plantations in the southern part of the State this summer, and specimens received last week indicate that it completely destroyed the fruit in one small planting.

OBLIQUE BANDED LEAF ROLLER (Archips rosaceana Harr.)

Wisconsin

E. L. Chambers (July 25): The oblique banded leaf roller has been reported being more plentiful than usual on raspberry plantings in the southern part of the State. The nursery inspectors have sent in several lots of specimens for verification.

RASPBERRY SAWFLY (Monophadnoides rubi Harr.)

New York

G. H. Salisbury (July 2): Sawflies are working on berries quite extensively in Chautauqua County.

F. B. Morris (July 18): Did considerable damage in several plantings in Oswego County.

Ohio

E. W. Mendenhall (July 11): The raspberry sawfly is very bad on raspberry leaves in plantations at Brandt, Miami County. The leaves are riddled and no doubt the damage is considerable to the new growth for tips.

Canada

G. H. Chamberlin (July 2): Raspberry sawfly injury can be noted in raspberry plantations in Ontario County.

RASPBERRY CANE BORER (Oberea bimaculata Oliv.)

New York

C. R. Crosby and assistants (July): Damage by this insect, though not extremely serious, was reported from Chautauqua, Oswego, and Onondaga Counties. (abstract J.A.H.)

RASPBERRY

RED SPIDER (Tetranychus telarius L.)

Michigan

R. H. Pettit (July 12): Berrien County is at present suffering from attacks of mites working on the foliage of raspberries. The reports would indicate that the attack is a very serious one and comes at the time of picking the fruit. It is now being investigated.

A TREE CRICKET (Oecanthus sp.)

New York

W. E. Field (July 18): The insect is causing serious injury in some Columbia plantings in Onondaga County.

BLACKBERRY

BLACKBERRY LEAF MINER (Metallus sp.)

New York

G. H. Salisbury (July 23): The blackberry leaf miner is generally distributed and is causing a few growers concern in Chautauqua County.

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

North Carolina

W. A. Thomas (July 3): Hundreds of specimens of this insect have been observed on the tender shoots of blackberry during the past few days at Chadbourn, but there was no evidence of feeding. They have been found only in plants adjacent to cultivated fields.

GRAPE

BLACK GRAPE APHID (Macrosiphum illinoisensis Shimer)

New York Sidney Jones (July 9): The black grape aphid was found on grapes near Newburg, Orange County, on July 2.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

New York D. M. Daniel (July 16): The grape berry moth in Chautauqua County seems to be confined mostly to the first few rods adjacent to the underbrush along Lake Erie, and along fence rows and woodlots.

Mississippi R. W. Harned (July 27): Grapes seriously injured by the grape berry moth have been received from Derma, Big Creek, Durant, and Stoneville.

EIGHT-SPOTTED FORESTER (Alypia octomaculata Fab.)

New York D. M. Daniel (July 16): Feeding of the eight-spotted forester moth has been noted in a few vineyards in Fredonia County.

G. H. Salisbury (July 23): In Chautauqua County the eight-spotted forester larvae can be found at work; although discovered here and there these pests seem to be found mostly along the western half of the shore line. Their numbers are not alarming.

Kansas J. W. McColloch (July 5): Larvae of this species are reported defoliating grapevines at Palco.

GRAPE LEAF SKELETONIZER (Harrisina americana Guer.)

North Carolina C. H. Brannon (July 20): This insect is causing considerable damage to grape leaves in unsprayed vineyards over the State.

GRAPE ROOT WORM (Fidia viticida Walsh)

Michigan R. H. Pettit (July 25): This insect for the first time is doing serious injury in Berrien County. In past years we have occasionally found scattered specimens, but only on rare occasions. This year the beetle is pretty well scattered over Berrien County and is reported by county agent Lurkins as well established and doing quite a little injury.

New York C. R. Crosby and assistants (July): During the first week of the month these beetles were observed, and by the 16th indications of a rather serious outbreak led the growers to spray. Unsprayed vineyards were seriously damaged by beetle-feeding. It was still evident at the end of the month. (abstract J.A.H.)

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York

C. R. Crosby and assistants (July): Throughout the lake grape-growing section the grape leafhopper is very much less prevalent than usual and this year is attracting little attention of the growers. (Abstract J.A.H.)

Ohio

T. H. Parks (June 20): These grape leafhoppers, Erythroneura comes and E. tricineta Fitch, are more abundant in commercial grape-growing counties along the lake shore than last year. A majority of the vineyards appear to be seriously infested east of Cleveland. More abundant compared with an average year.

Nebraska

M. H. Swenk (June 15-July 15): Complaints of injury to woodbine and grapevines by the grape leafhopper continued to be received during the period covered by this report.

GRAPE FLEA BEETLE (Haltica chalybea Ill.)

New York

E. E. Frane (July 10): Caused slight injury to buds; some larvae have been found in Wayne County.

D. M. Daniel (July 16): Several complaints of injury by a steely beetle attacking grape have been received from Fredonia County.

RED-HEADED FLEA BEETLE (Systema pallicornis Schif.)

New York

D. M. Daniel (July 16): Feeding of the eight-spotted forester moth and of the red-headed systema beetle has been noted in a few vineyards in Fredonia County.

GRAPE PHYLLOXERA (Phylloxera vitifoliae Fitch)

New York

Sidney Jones (July 9): The grape phylloxera was found to be doing injury to a vineyard in the Newburg section of Orange County July 6.

Indiana

J. J. Davis (July 27): The leaf gall form of the grape phylloxera was reported from Lapel June 28 and from Peru July 21. This leaf gall form is reported every year, but apparently occurs only on wild varieties and is never serious.

EUROPEAN FRUIT LECANIUM (Lecanium corni Bouche)

New York

C. R. Crosby (June 18): Specimens received from Allegany County, also infested vine received from Belmont. Determination made by Dr. Morrison.

CURRANT AND GOOSEBERRY

CURRANT APHID (Myzus ribis L.)

CURRENT AND GOOSEBERRY

CURRENT APHID (Myzus ribis L.)

New York C. R. Crosby and assistants (July): The current aphid is normally abundant in the west-central counties. (abstract J.A.H.)

HOUGHTON'S GOOSEBERRY APHID (Aphis houghtonensis Troop.)

Indiana J. J. Davis (July 27): The gooseberry gall aphid, Aphis houghtonensis, damaged gooseberry at Greensburg, July 7.

GOOSEBERRY FRUIT WORM (Zophodia grossulariae Riley)

Mississippi R. W. Harned (July 27): During the latter part of June a correspondent at Corinth in Alcorn County reported that blueberries were being seriously injured by larvae that have been tentatively identified as the gooseberry fruitworm.

PECAN

PECAN LEAF CASE BEARER (Acrobasis nebulella Riley)

North Carolina C. H. Brannon (June 20): This insect is causing severe damage to pecans in the eastern part of the State.

RED SPIDER (Tetranychus telarius L.)

Mississippi R. W. Harned (July 27): Injury to pecan trees by these mites was reported from Leflore and Noxubee Counties recently. Many complaints in regard to red spider on ornamental plants have also been received.

WALNUT CATERPILLAR (Datana integerrima G. & R.)

Mississippi R. W. Harned (July 27): The walnut caterpillar seems to be present on pecan trees in all parts of the State.

PECAN BUDMOTH (Proctotervx bolliana Slug.)

Mississippi R. W. Harned (July 27): We continue to receive many complaints in regard to injury to pecan trees by the pecan budmoth. During July specimens have been received from Humphreys, Sunflower, Leflore, Harrison, and Lee Counties.

WALNUT

WALNUT HUSK MAGGOT (Rhagoletis juglandis Cress.)

California

Monthly News Letter Los Angeles County Hort. Comm. Vol. 10, No. 7, July 15: During the past two or three seasons English walnuts from orchards near Chino on the Los Angeles -San Bernardino County line have been under suspicion of infestation with a husk maggot, a species of insect belonging to the family of fruit flies and not definitely known to occur in the State. Until recently, however, only adults of local scavenger flies had been reared from repeatedly collected infested material. Recently adult specimens of the Walnut husk maggot determined by Dr. J. M. Aldrich, U. S. National Museum, Washington, D. C., were reared by H. M. Armitage, Deputy Horticultural Commissioner, Los Angeles, from material collected in this same locality in October, 1927.

WALNUT APHID (Chromaphis juglicola Kalt.)

California

Monthly News Letter Los Angeles County Hort. Comm. Vol. 10, No. 7, July 15: A recent heavy infestation of walnut aphid throughout the walnut districts has recently caused considerable attention due to the rapid blackening of the foliage from the "sootymold" fungus growing in the honeydew copiously secreted by these insects. The infestation has apparently passed its peak. Egg clusters of the ashy-gray ladybird beetle, a most effective enemy of this pest, are everywhere over foliage and bark of infested trees, and together with a few days of hot weather should bring about early effective control.

CITRUS

CITROPHILUS MEALYBUG (Pseudococcus gahani Green)

California

Monthly News Letter Los Angeles County Hort. Comm. Vol. 10 No. 7, July 15: According to the report of Deputy Horticultural Commissioner, H. M. Armitage in Charge of Insectary Operations, these beetles were distributed over approximately 8,000 acres of citrus throughout the county.

BLACK SCALE (Saissetia oleae Bern.)

California

Monthly News Letter Los Angeles County Hort. Comm. Vol. 10, No. 7, July 15: The hatch of black scale is practically complete in all districts and in the coast area the young scales are reported as reaching considerable size with some scales already migrating back to the wood.

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

California

Monthly News Letter Los Angeles County Hort. Comm.
Vol. 10, No. 7, July 15: All host plants of the citrus
whitefly in the Arcadia Nursery in which a recent in-
festation of this pest was recorded have been destroyed
by burning.

CITRUS RUST MITE (Eriophyes oleivorus Ashm.)

Texas

F. L. Thomas (June 25): S. W. Clark, entomologist of the
Lower Rio Grande Valley substation, reports that rust
mites are becoming quite abundant in the groves.

TRUCK - CROP INSECTS

BLISTER BEETLES (*Meloidae*)

Indiana J. J. Davis (July 27): The striped blister beetle, Epicauta vittata, damaged dahlia flowers at Connersville July 18.

Mississippi R. W. Harned (July 27): Blister beetles identified as Macrobasis unicolor were reported as causing severe injury to Irish potatoes at Booneville July 5.

CARROT BEETLE (Ligyrus gibbosus DeG.)

Kansas J. W. McColloch (June 23): This species is seriously damaging carrots, tomatoes, and parsnips at Rolla.

WESTERN GARDEN FLEA BEETLE (Phyllotreta pusilla Horn)

Nebraska M. H. Swenk (June 15-July 15): The western garden flea beetle continued to be complained of on garden truck until toward the end of June.

ZEBRA CATERPILLAR (Mamestra picta Harr.)

Ohio T. H. Parks (July 23): The zebra caterpillar has been much more abundant than usual and has been attacking onions and other garden vegetables in various parts of the State.

Indiana J. J. Davis (July 27): The zebra caterpillar was reported on onions at Judson June 27 and on peas, cabbage, and beets at Thorntown July 2.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

New York C. R. Crosby and assistants (July): Serious injury to beans and sweet corn by this insect has been reported from Wayne, Onondaga, and Ontario Counties. (abstract J.A.H.)

Wisconsin J. E. Dudley, Jr. (July 21): Unusually severe infestation by what was believed to be the seed corn maggot was found in rows of cull onions the middle of June in Kenosha County. No infestation of any extent could be found in seeded onions. This is the first time in 5 years that this species, if correct, has been known to attack onions to amount to anything. There were 7 inches of rain reported during June at Racine, 4 miles from the laboratory. This exceeds all records for June. The rainfall coming in especially hard downpours destroyed from 75 to 90 per cent of either eggs or young larvae, or both, of the onion maggot. These weather conditions also resulted in an uneven and late emergence of adults. Oil was applied to cull rows July 19, about a month later than usual. The early heavy infestation of maggots was found upon examination to con-

sist of about 80 per cent of what appears to be Hylemyia fusciceps and 20 per cent Hylemyia antiqua.

GARDEN SLUG (Agriolimax agrestis L.)

New York

C. R. Crosby and assistants (July): Damage by slugs to potatoes, tomatoes, and beans has been reported from Chautauqua and Ontario Counties. (abstract J.A.H.)

SPITTLE INSECTS (Cercopidae)

New York

C. R. Crosby and assistants (July): Adults of spittle insects are reported from Wayne County and also reported from Oswego County attacking strawberry. (abstract J.A.H.)

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

New York

C. R. Crosby and assistants (July): The Colorado potato beetle was first observed in July; reports from practically all parts of the State indicate that this insect is as abundant as usual or slightly more so.

South Dakota

H. C. Severin (July 12): The Colorado potato beetle appears to be very severe all over the State.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

New York

C. R. Crosby and assistants (July): The potato flea beetle was considerably more serious than usual throughout the greater part of the State during the first two weeks of July, and by the third week it had practically disappeared, and but little damage was reported later in the month. (abstract J.A.H.)

Indiana

J. J. Davis (July 27): The black ^{potato} flea beetle was reported as damaging potatoes at Ambia July 6.

THREE-LINED POTATO BEETLE (Lema trilineata Oliv.)

New York

C. R. Crosby and assistants (July): Specimens of this insect were received from Westfield, where they were attacking potatoes.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

New York

C. R. Crosby and assistants (July): Throughout the early part of the month but few leafhoppers were observed throughout the potato-growing sections; by the middle of the month they were still scarce but were beginning to appear and were becoming numerous toward the end of the month. The only excep-

tion to this was Onondaga County, where hopperburn was appearing during the second week in July. (abstract J.A.H.)

Indiana

J. J. Davis (July 27): The potato leafhopper was reported damaging potatoes at Waterloo July 21 and at Brighthurst July 25.

Illinois

W. P. Flint (July 21): The apple leafhopper is extremely abundant this year and is causing severe injury to potatoes.

Wisconsin

E. L. Chambers (July 25): Early potatoes and dahlias are beginning to show injury from leafhoppers which seem to be more prevalent this summer than last in southern counties. Many dahlias are already showing hopperburn according to the nursery inspection reports.

Iowa

C. N. Ainslie (July 24): This jassid appears to have done much harm to potato fields in the vicinity of Sioux City, producing premature ripening and death of the leaves. Some fields are comparatively free from these pests, while near-by fields suffer. The potato acreage here is large this season.

TARNISHED PLANT BUG (Lygus pratensis L.)

New York

C. R. Crosby and assistants (July): The tarnished plant bug was reported as doing an unusual amount of damage to potatoes in the west-central part of the State, the damage being principally to the tips of the vines. (abstract J.A.H.)

POTATO APHID (Illinoia solanifolii Ashm.)

New York

C. R. Crosby and assistants (July): A few potato aphids were seen in Suffolk County the first of the month, and they were becoming abundant by the middle of the month. (abstract J.A.H.)

TOMATO WORM (Protoparce sexta Johan.)

Mississippi

K. L. Cockerham (June 15): One patch of tomatoes at Biloxi was found to be severely defoliated by the tomato horn worm, the damage having been done during the preceding week.

POTATO PSYLLID (Paratriozoa cockerelli Sulz.)

Utah

Official Record Vol. 7, No. 28, July 11: A new disease reported last year from Utah for the first time is now generally distributed in early potato sections of Utah. Affected plants vary from 2 to 60 per cent. Considerable damage to crop expected. (B.L. Richards, Utah Agr. Exp. Sta., Logan.)
(J. E. Graf (July 30): The psyllid which is reported to cause the peculiar disease of potatoes in some sections of the west is Paratriozoa cockerelli.

CABBAGE

IMPORTED CABBAGE WORM (Pieris rapae L.)

- New York C. K. Bullock (July 16): Butterflies of the imported cabbage worm are laying eggs in large numbers in Ontario County. Some have hatched and are doing damage.
- North Carolina W. A. Thomas (July 16): Within the past few days this insect has been observed defoliating collards in many home gardens in this section (Chadbourn). Two weeks ago few specimens could be found on this plant, but heavy rains have followed and now many plants are seen completely destroyed.
- Indiana J. J. Davis (July 27): The cabbage worm was destructive to cabbage at Warsaw and Marion July 23 and 24, respectively.
- Wisconsin E. L. Chambers (July 25): Early cabbage is being hard hit by the cabbage worm and indications received from our pest reporters show that considerable loss will result generally over the State this summer.
- South Dakota H. C. Severin (July 12): The imported cabbage worm appears to be very severe all over the State.

CABBAGE MAGGOT (Hylemyia brassicae Bouche)

- Maine J. H. Hawkins (July 13): The cabbage maggot was abundant at Newport June 26, cabbage, radishes, and turnips being attacked. The cabbage maggot was found to affect from 11 to 17 per cent of the crop at Cape Elizabeth July 6.
- New York C. R. Crosby and assistants (July): The cabbage maggot was very serious the first half of the month in seed-beds, reports of heavy losses having been received from Wayne, Ontario, Onondaga, and Genesee Counties. (abstract J. A. H.)

DIAMOND-BACK MOTH (Plutella maculipennis Curtis)

- North Carolina W. A. Thomas (July 2): A rather heavy infestation of this insect was observed on collards growing in a home garden at Chadbourn. The injured areas were very noticeable from a considerable distance. Parasitism seems to be very light in this area this season.

HARLEQUIN BUG (Murgantia histrionica Hahn)

- North Carolina W. A. Thomas (July 17): The harlequin bug was doing serious damage to collards in the vicinity of Chadbourn about two weeks ago, but the recent heavy rains seem to have checked their work somewhat and the injury is not so apparent at this time.

Alabama

L. W. Brannon (July 13): The harlequin bug is amore abundant than it was a month ago on cabbage at Birmingham, but it is less abundant than normal. The first generation started emerging in the insectary on June 18, and was seen in the field at about that time. It can be found in cabbage fields in this district, but is not causing serious damage.

GREEN PEACH APHID (Myzus persicae Sulz.)

New York

W. G. Been (July 16): The spinach aphid is migrating to cauliflower quite rapidly in Suffolk County.

STRIPED FLEA BEETLE (Phyllotreta vittata Fab.)

New York

W. E. Field (July 18): These flea beetles are causing great damage on Brusselssprouts and in late cabbage seed-beds in Onondaga County.

STRAWBERRY

STRAWBERRY ROOT APHID (Aphis forbesi ~~Weed~~)

North Carolina

W. A. Thomas (July 17): The strawberry root louse infestation seems to be increasing rapidly in the strawberry-growing areas of North Carolina. The infestation at Chadbourn is extremely heavy at this time. In many fields it is almost impossible to find a plant that does not carry a fairly heavy infestation. The berry growers are very much discouraged owing to the heavy loss sustained in young plants where the aphids are present in large numbers. Fields planted in early spring already show a loss in plants of from 25 to 50 per cent under wet weather conditions. When dry weather sets in the damage will increase much more rapidly, judging from past records.

STRAWBERRY CROWN BORER (Tyloderma fragariae Riley)

Mississippi

R. W. Harned (July 27): Serious injury to strawberries by the strawberry crown borer was reported recently from Meridian.

STRAWBERRY LEAF ROLLER (Ancyliis comptana Fröhl.)

Ohio

E. W. Mendenhall (July 12): I find the leaf rollers quite bad in some localities in Miami County, some damage having occurred.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

Washington

R. L. Webster (July 7): These beetles were reported from Sunnyside as entering houses and becoming a nuisance.

ASPARAGUS

ASPARAGUS BEETLE (Crioceris asparagi L.)

New York

C. R. Crosby and assistants (July): The asparagus beetle is abundant and causing much trouble in Onondaga and Chautauqua Counties. (abstract J.A.H.)

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata L.)

New York

C. R. Crosby and assistants (July): This insect was reported from Onondaga and Chautauqua Counties during the first half of the month. (abstract J.A.H.)

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Pennsylvania

J. N. Knull (July 25): Larvae and pupae of the Mexican bean beetle were found on bush beans at Espy, Columbia County.

Maryland

W. E. McBath (July 9): The Mexican bean beetle has made its appearance near Glen Echo just across the District line along Conduit Road.

E. Hall (July 17): This insect appeared last year in small numbers at Glendale and has made its appearance in enormous numbers this year. The plants in the sun are badly injured while those in the shade were not so badly injured.

J. A. Hyslop (July 18): The Mexican bean beetle appeared in destructive numbers, completely defoliating garden beans in southeastern Montgomery County the second week in July. Adult beetles were appearing in large numbers July 25.

J. E. Graf (July 30): As far as our reports through correspondence and other sources are concerned in regard to the Mexican bean beetle, this pest now infests all of the State of Maryland, making its ^{first} appearance on the Eastern Shore and southern Maryland this season. It has been reported that it was particularly destructive in some sections of southern Maryland and in the vicinity of Annapolis.

Virginia

Miss Van Horn (July 15): Last year the Mexican bean beetle made its appearance in very few numbers at Barcroft and this year it has appeared in enormous numbers and has defoliated beans in many places. This is the second generation.

W. S. Abbott (July 9): This insect is present in large numbers at Vienna and has destroyed many early plantings of snap beans, and is now going to the lima beans.

North Carolina C. H. Brannon (July 20): This insect is causing tremendous damage to beans all over the State. Damage started late owing to the delayed season.

Georgia E. L. Worsham (July 23): The Mexican bean beetle is doing serious damage throughout the middle and northern part of Georgia. This pest seems not to be present in the southern half of the State. Where it is present it is doing the same amount of damage as last year.

Ohio E. W. Mendenhall (July 20): This insect is quite bad in places in Montgomery County, and was found as far north as Miami County July 13.

Indiana J. J. Davis (July 27): The Mexican bean beetle was reported as far north as Kokomo and Anderson July 21 and as far west as Birdseye July 6.

Alabama L. W. Brannon (July 13): The first generation of Mexican bean beetles began appearing in the fields June 11 and are now present in the fields in large numbers. The first crop of bunch beans escaped serious injury but the second crop will be severely injured unless control measures are used. Adults and larvae were found feeding on cowpeas near a field of destroyed beans and adults and eggs were found on soy beans at the same place. Pole beans are being severely injured in the vicinity of Birmingham. Only 4.5 per cent of the beetles emerged in the hibernation cage. The field infestation is now worse than this survival would indicate.

GARDEN FLEA HOPPER (Halticus citri Ashm.)

Maryland J. A. Hyslop (July 10): This insect was observed July 10 in greater numbers on string beans than it has been in the past 10 years on my farm near Silver Spring.

BEAN APHID (Aphis rumicis L.)

Ohio E. W. Mendenhall (July 17): There is an outbreak of the bean aphid on garden beans at Brandt, Miami County, where considerable damage is being done.

AN APHID (Geocica radicola Essig)

Indiana J. J. Davis (July 27): These root aphids were reported destructive to beans at Salem June 30 and Pennville July 2.

PEAS

PEA APHID (Illinoia pisi Kalt.)

New York C. R. Crosby (July 14): This insect is present in a few

fields in Yates and Ontario Counties, but it is causing no real loss.

Wisconsin

E. L. Chambers (July 25): Many complaints have been received that sweet peas are being heavily attacked by the pea aphid. They seem to have suddenly appeared simultaneously throughout the southern part of the State on or about the 15th of July.

J. E. Dudley, Jr. (July 24): The abundance of this insect on peas and alfalfa is fluctuating greatly but at this time there seems to be less than one-fourth as many as last month, being only half the number that occurred last year in Columbia County. Coccinellids are numerous, but not so abundant as usual; syrphids began to increase noticeably about July 1 and at the present time are much more abundant than usual. Several mornings they have been so thick on the ground that a continual buzzing as of a hive of bees resulted. Adults have been collected by the hundreds with a hand net. Nabis ferus is more abundant than usual. Parasites, chrysopids and fungus disease are much less abundant than usual and have played little part in control.

CUCUMBERS

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Maine

J. H. Hawkins (July 13): The striped cucumber beetle was attacking cucumber and squash plants at several places in the State during the first week in July.

New York

C. R. Crosby and assistants (July): In general, this insect seems to be normally abundant throughout the central and western part of the State and was reported as unusually abundant from Monroe and Oswego Counties. (abstract J.A.H.)

Illinois

C. C. Compton (July 14): The striped cucumber beetle is much less abundant than usual. It has not been necessary to use any control measures in Cook County this season.

Wisconsin

J. E. Dudley, Jr. (July 21): This insect was late appearing and did little damage to seedling cucurbits owing to the frequent rains occurring during the short period when cucurbits are most susceptible to its attack (Kenosha County). (June 15-July 1): On account of the heavy precipitation, it was impossible to walk in many fields for a week or ten days to treat the beetles, and by the middle of July they were decidedly scarce in cucurbit fields.

South Dakota

H. C. Severin (July 12): The striped cucumber beetle appears to be very severe all over the State.

Nebraska M. H. Swenk (June 15-July 15): Complaints of injury by the striped cucumber beetle continued to be received in normal numbers during the entire period covered by this report.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

New York Sidney Jones (July 2): The 12-spotted cucumber beetle is present on potatoes in Orange County.

North Carolina C. A. Brannon (June 15): Adults of this species are causing widespread damage to leaves of tobacco and cotton.

MELONS

MELON APHID (Aphis gossypii Glov.)

Georgia E. L. Worsham (July 23): The cotton aphid is unusually abundant, presumably due to the very wet season.

Nebraska M. H. Swenk (June 15-July 15): The abundance of aphids referred to in my last report receded to about normal numbers toward the end of June, except in the case of the melon aphid, which continued to be complained of about as usual during the entire period covered by this report.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

Nebraska M. H. Swenk (June 15-July 15): The squash bug was first reported as doing injury on June 30.

CARROT

CARROT RUST FLY (Psila rosae Fab.)

New York C. R. Crosby and assistants (July): The flies appeared in great numbers in Oswego County and in more than normal numbers in Wayne County by the middle of the month. (abstract J.A.H.)

ONIONS

ONION THRIPS (Thrips tabaci L.)

New York J. G. Gaines (July 19): Infestation of this insect is heavier than normal for this time of the year.

Indiana J. J. Davis (July 27): The onion thrips were reported as damaging onions at Elwood July 17.

Illinois C. C. Compton (July 14): The onion thrips is appearing in much larger numbers than at any time in the past five years. Under favorable weather conditions the next few weeks the damage will be considerable.

ONION MAGGOT (Hylemyia antiqua Meig.)

Maine J. H. Hawkins (July 13): The onion maggot was present at Newport June 26 and doing considerable damage to seedbed onions.

Indiana J. J. Davis (July 27): The onion maggot was reported as damaging onions at Bourbon June 26 and from Calumet City July 17.

New York C. R. Crosby and assistants (July): This insect is present but less abundant than last year in Oswego and Wayne Counties. (abstract J.A.H.)

LESSER BULB FLY (Eumerus strigatus Fall.)

Michigan E. McDaniel (July 19): The first case of an actual attack of the lesser bulb fly ^{on onions} has just occurred. Samples of onions destroyed by this insect arrived today from Leslie.

SWISS CHARD

BEET FLEA BEETLE (Disonycha xanthomelaena Dalm.)

Nebraska M. H. Swenk (June 15-July 15): Swiss chard was badly injured by the spinach flea beetle during the early part of the month at Lincoln.

LETTUCE

SIX-SPOTTED LEAFHOPPER (Cicadula sexnotata Fall.)

New York J. G. Gaines (July 19): There is a moderate infestation on lettuce in Wayne County.

PEPPER

PEPPER WEEVIL (Anthonomus eugenii Cano.)

California Monthly News Letter, Los Angeles County Hort. Comm. Vol. 10, No. 7, July 15: Out of 800 acres of green peppers growing in

Los Angeles, 452 acres have been inspected to date and fields totaling 371 acres found infested with the pepper weevil.

SWEET POTATO

SWEET-POTATO FLEA BEETLE (Chaetocnema confinis Gr.)

South Carolina M. H. Brunson (July 10): The sweet potato flea beetle has been damaging sweet potatoes and corn quite extensively.

TORTOISE BEETLES (Cassidinae)

Mississippi R. W. Harned (July 27): Tortoise beetles seem to be rather abundant on sweet potato and morning glory vines in all parts of the State. On July 11, Inspector W. L. Gray of Natchez reported that he had never before seen them so abundant as they are at the present time in his territory. They are to be found in practically every sweet potato field and on practically every morning glory vine examined. The species that have been received at this office are Chelymorpha cassidea Fab., Chirida guttata Oliv., Metritona bicolor Fab., and M. bivitta Say.

PEANUTS

TOBACCO THRIPS (Frankliniella fusca Hinds)

North Carolina W. A. Thomas (July 2): A small field of peanuts near Chadbourne was observed in which practically every terminal bud seemed to be dying. On closer examination it was found that these buds were heavily infested with thrips, the injury having occurred just before the young leaves unfolded. After the leaves unfold, the injured areas turn brown, which gives the buds the appearance of dying. Every plant in the field was more or less injured.

F O R E S T A N D S H A D E T R E E I N S E C T S

PERIODICAL CICADA (Tibicina septendecim L.)

New York Weekly News Letter N. Y. St. Coll. Agr. July 2: Orange County (Sidney Jones): The periodical cicada was very active this week. The cicadas were ovipositing in a pear orchard and a vineyard near Newburgh and caused considerable damage on both. Young trees in infested areas are being covered with cheese cloth. Dutchess County (Ray Bender): The cicada injury is starting to show up on trees; the ends are withering and dying back, probably due to drying out of the tissue. One vineyard is showing a large amount of dead areas due to locust stinging. Ulster County (E. J. Hambleton): Cicada injury to grape and apple has caused some comment. The woodland trees are losing

the tops of the smaller branches. The worst infestation seemed to occur two miles north of New Paltz, one mile south of Marlboro, and in the vicinity of Flatbush. Greene County (A. S. Mills): Cicadas are not making so much noise as before. They have injured many of the terminals in a few apple and pear orchards.

Weekly News Letter N. Y. St. Coll. Agr. July 9: Orange County (Sidney Jones): The periodical cicadas are still stinging orchards and vineyards. Many of the injured twigs were broken off by the recent heavy winds. Dutchess County (Ray Bender): The cicadas ~~are~~ beginning to disappear. Those that are left are more active. Apparently the oviposition is practically at an end. Where they have been present in numbers their work can be seen at a distance.

Weekly News Letter N. Y. St. Coll. Agr. July 16: Orange County (Sidney Jones): A young orchard of apples which was not covered with cheese cloth was severely damaged by periodical cicada. Some trees that were wrapped were injured. However, the work of this insect now appears to be over. Very few can be seen alive. Dutchess County (Ray Bender): One block of about 2,000 young trees has been fairly well cleaned up by the cicadas, while a block of 700 trees just across the hedgerow which were covered show no injury.

GYPSY MOTH (Porthetria dispar L.)

Canada

Official Record, Vol. 7, No. 28, July 11: Having determined, as a result of the apparent eradication of the gypsy moth in the Province of Quebec, Dominion of Canada, which has been confirmed by field surveys made by the Canadian Department of Agriculture, that the risk of introducing this pest into the United States is no longer involved in the importation of Christmas trees and greens from that Province, Acting Secretary Marvin, on June 27, under the authority conferred by the act of Congress approved August 20, 1912 (37 U.S. Stats. 315), revoked Notice of Quarantine No. 57 (Foreign), which removed the quarantine established thereby from the Province of Quebec. The order of revocation took effect July 1.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Ohio

E. W. Mendenhall (July 26): The bagworm has made its appearance again in Springfield (Clark County) on arborvitae and other evergreens, doing some damage.

Indiana

J. J. Davis (July 27): Bagworms were reported during July from Danville on maple and also reported from Aurora.

Mississippi

R. W. Harned (July 27): During the first week in July correspondents at Meridian and Canton reported rather serious infestations of bagworm on arborvitae.

WHITE-MARKED TUSsock MOTH (Hemerocampa leucostigma S. & A.)

- New York E. E. Frane (July 10): There are few specimens of this insect present in Wayne County.
- Indiana J. J. Davis (July 27): The tussock moth was reported from Franklin July 9.
- Wisconsin E. L. Chambers (July 25): The white-marked tussock moth is more abundant than usual this year and seems to be pretty well established over the State. The larvae are fairly well developed now and many have pupated.
- Nebraska M. H. Swenk (June 15-July 15): The white-marked tussock moth was first reported doing serious injury on elm trees in Lincoln on June 29. Other reports were subsequently received from other localities during the period covered by this report.

CANKERWORMS (Geometridae)

- New York G. H. Salisbury (July 2): Cankerworms are less active than formerly in Chautauqua County.
- Pennsylvania A. B. Champlain through T. L. Guyton (July 6): Cankerworm injury was very evident in northwestern areas of Pennsylvania visited on inspection trips during June. From Tyrone to Fuxsutauney and Belleville both orchards and forest trees showed considerable browning and defoliation. A variety of deciduous trees were affected, including apple. On the dates, June 20 to 23, the caterpillars were about full grown and many were descending to pupate. These caterpillars come from the trees on threads of silk, and it is impossible to walk or drive under the trees without being covered with them. The egg parasite Trichogramma minutum Riley has not, so far, been found under natural conditions.

T. L. Guyton (July 20): An interesting observation in connection with the above cankerworm infestation was the presence of a predacious ground beetle, Calosoma frigidum Kby. This useful insect was very plentiful in all localities where the cankerworms were present. It is no doubt a valuable asset in reducing the cankerworm hordes and should be protected. Many of these beetles were found on the trees and foliage and on the ground, feeding on the cankerworm larvae. The writer has observed a species of Calosoma beetle in great numbers during a cankerworm outbreak on scrub oaks in Colorado; and in Connecticut C. willcoxi Lec. and C. frigidum were plentiful during cankerworm ravages in that State. In every case these beetles consumed great numbers of the worms. It is also interesting to remember that Calosoma sycophanta L. was imported from Europe to combat the gypsy moth in New England.

FALL WEBWORM (Hyphantria cunea Drury)

Nebraska

M. H. Swenk (June 15-July 15): The fall webworm began to appear on the trees in such numbers as to occasion complaints during the last few days in June and the early part of July.

PACIFIC RED SPIDER (Tetranychus pacificus McGregor)

California

E. A. McGregor (July 23): Probably the worst pest of shade trees in the great SanJoaquin Valley of California is the Pacific red spider. There are facts which indicate that the sycamore tree, Platanus racemosa, may be the native host of this mite. Very severe injury occurs every year to a certain percentage of these trees, resulting at times in almost complete defoliation. The chinaberry or umbrella tree, is the commonest ornamental tree in the cities and towns of central California. Frequently the streets are lined solidly with these trees. Almost every summer the Pacific red spider becomes so abundant on the chinaberry trees as to cause very heavy shedding of foliage, resulting commonly in the loss of their shade value. Certain cities (Lindsay for example) maintain a department of pest control for the almost exclusive purpose of combating this pest. During the present season every tree in town has been sprayed at least once, and many of them twice. The present correspondent has for the past several years conducted an incidental study of this pest and hopes to publish on it eventually.

GALL MITES (Eriophyes spp.)

Nebraska

M. H. Swenk (June 15-July 15): Gall mites of various species continued to be reported during the second half of June and early July. These included not only the pouch galls on wild plum and elm mentioned in my last report, but also during the latter part of June the walnut velvety leaf stem gall, Eriophyes sp., and the linden leaf gall, E. abnormis.

ASH

ASH TREE BORER (Podosesia fraxini Lugger)

South Dakota

H. C. Severin (July 12): Shade trees and windbreaks* are badly injured in numerous sections of the State. This is the most serious pest of ash.

ASH APHID (Pemphigus fraxinifolii Thom.)

Nebraska

M. H. Swenk (June 15-July 15): The ash aphid was reported injuring ash trees during the period covered by this report.

BOXELDER

BOXELDER BUG (Leptocoris trivittatus Say)

South Dakota

H. C. Severin (July 12): Many housekeepers have complained about boxelder bugs entering homes during June and early July.

BOXELDER APHID (Periphyllus negundinis Thomas)

Nebraska

M. H. Swenk (June 15-July 15): An infestation of boxelder trees with the boxelder aphid appeared in several parts of the State during late June and early July.

CATALPA

CATALPA SPHINX (Ceratonia catalpae Boisd.)

Ohio

E. W. Mendenhall (July 20): The catalpa sphinx is beginning to show up again in Montgomery County. There are a good many catalpa trees planted in this county and this pest is well supplied with food.

ELM

WOOLLY ELM APHID (Eriosoma americanum Riley)

Nebraska

M. H. Swenk (June 15-July 15): The woolly elm aphid was frequently reported injuring elm trees.

ELM BORER (Saperda tridentata Oliv.)

Wisconsin

E. L. Chambers (July 25): Several 40-foot elms in Madison were examined recently upon complaint of the city forester and found practically dead with a severe infestation of this borer. The bark had sloughed off in large sheets. These borers, however, are believed to be a secondary infestation.

ELM LEAF BEETLE (Galerucella xanthomelaena Schrank)

Ohio

E. W. Mendenhall (July 15): Some of the elm trees in Troy are attacked severely by the elm leaf beetle. (July 27): The elm leaf beetle was found infesting the European elm trees at the National Cash Register establishment at Dayton in 1904, which was the first outbreak in the State. It has done considerable damage to the elms in the past, but with diligence and careful spraying it is pretty well under control with the exception of a few outbreaks outside of the city of Dayton. The pest has been confined to the Miami Valley, southwestern Ohio. (July 26): The elm leaf beetle is quite bad on a few elm trees near New Carlisle, Clarke County. There are not

many elms in New Carlisle, but they are severely attacked.

A CASE BEARER (Coleophora sp.)

New York

W. D. Been (July 9): Case bearers were found on elm in Suffolk County.

LOCUST

LOCUST BORER (Cyllene robiniae Forst.)

Indiana

J. J. Davis (July 27): The locust borer was reported from Francesville and Vincennes July 6.

MAPLE

COTTONY MAPLE SCALE (Pulvinaria vitis Rathv.)

Indiana

J. J. Davis (July 27): The cottony maple scale became conspicuous throughout central Indiana usually on maple, but occasionally on grape. The ladybird, Hyperaspis binotata, has been especially abundant where the scale is destructive.

Illinois

W. P. Flint (July 21): Numerous reports of infestation by the cottony maple scale have come in from central and northern Illinois. In many cases these reports have been accompanied by specimens. Hatching started in central Illinois about July 1 and in northern Illinois a few days later. Predators are rather abundant.

PINE

NANTUCKET PINE MOTH (Rhyacionia frustrana Comst.)

Nebraska

M. H. Swenk (June 15-July 15): Serious injury to the new growth in a grove of western yellow pines near Stuart, Holt County, by the pine tip moth was reported during the third week in June.

SPRUCE SAWFLY (Neodiprion abietis Harr.)

New York

A. B. Burrell (July 2): The sawfly larvae on pitch pine are continuing their ravages unabated.

PINE BARK APHID (Chermes pinicorticis Fitch)

Ohio

E. W. Mendenhall (July 3): The pine bark aphid is quite bad in a nursery in Columbus.

PINE SCALE (Toumeyella pinicola Ferris)

New York

C. R. Crosby (June 4): Specimens of this insect were received from Orange County, where they were attacking pine.

SPRUCE

SPRUCE BUD SCALE (Physokermes piceae Schrank)

Wisconsin

E. L. Chambers (July 25): The spruce trees in several nurseries have been found heavily infested with this scale, and some trees were reported by the inspectors as wilting under the attack.

SPRUCE GALL APHID (Chermes abietis Kalt.)

New York

Ray Bender (July 9): Spruce gall aphids seem to be fairly numerous on apple in Dutchess County.

SYCAMORE

SYCAMORE LEAF ROLLER (Ancylis platanana Clem.)

Ohio

E. W. Mendenhall (July 19): I find the sycamore leaf folder in Montgomery County doing considerable damage to the leaves of sycamore.

TAMARACK

LARCH SAWFLY (Nematus erichsoni Hartig.)

Wisconsin

E. L. Chambers (July 25): The larch sawfly has been defoliating a large number of tamarack trees in the northwestern part of the State this summer. Several pest reporters have submitted large numbers of species.

WILLOW

CURRENT STEM GIRDLER (Janus integer Nort.)

Indiana

J. J. Davis (July 27): The willow shoot sawfly was reported damaging shoots of basket willow at Richmond July 19.

INSECTS AFFECTING GREENHOUSE AND
ORNAMENTAL PLANTS AND LAWNS

RED SPIDER (Tetranychus telarius L.)

Indiana

J. J. Davis (July 27): The red spider was abundant in evergreens at Rising Sun July 17 and at Aurora July 24.

Wisconsin

E. L. Chambers (July 25): There has been an increasing number of complaints during the past week from red-spider injury. Raspberry plantings and evergreens seem to be hard hit this summer.

Nebraska

M. H. Swenk (June 15-July 15): Injury by the red spider Tetranychus bimaculatus, on evergreens of various kinds was commonly reported during the entire period here covered.

FULLER'S ROSE BEETLE (Pantomorus fulleri Horn)

Georgia

O. I. Snapp (July 20): The Fuller's rose beetle is more abundant than usual this year. Some complaints of damage to foliage of ornamentals and other plants have been received.

BLACK STINK BUG (Cosmopelma bimaculata Thos.)

New York

G. H. Griswold (July 27): There is a heavy infestation of this insect in a flower garden of snapdragons and columbine at Altamont, Albany County.

COLUMBINE

COLUMBINE LEAF MINER (Phytomyza aquilegiae Hardy)

Virginia

W. S. Abbott (July 10): A leaf miner, probably Phytomyza aquilegiae, has practically destroyed several beds of columbine.

COLUMBINE BORER (Papaipema purpurifascia G. & R.)

New York

G. H. Griswold (July 13): This species is heavily infesting the roots of cultivated columbine in gardens of the Department of Floriculture.

LEAFHOPPERS (Jassidae)

South Dakota

H. C. Severin (July 12): Greater damage than usual to columbine by these insects has been reported from many localities.

ELDERBERRY

SPINDLE WORM (Achatodes zeae L.)

Wisconsin

E. L. Chambers (July 25): The spindle worm continues to be sent into the office for identification from both ornamental and wild species of elder. They have never been reported so abundant as they have this year.

DELPHINIUM

LARKSPUR LEAF MINER (Phytomyza delphiniae Frost)

New York

G. H. Griswold (July 12): This is a new pest, just described by Frost (Can. Ent. 60: 77-8, 1928), and is common in gardens at Ithaca attacking delphinium.

IRIS

IRIS BORER (Macronoctua onusta Grote)

Wisconsin

E. L. Chambers (July 25): The iris borer has been observed as being more serious this summer than last by our nursery inspectors. One planting observed in Dane County had nearly 100 per cent infestation.

PALM

A RHINOCERUS BEETLE (Strategus julianus Burm.)

Mississippi

R. W. Harned (July 27): Beetles belonging to the species Strategus julianus have been reported as causing medium injury to palms at Gulfport and Long Beach.

PUSSY WILLOW

WILLOW CURCULIO (Cryptorhynchus lapathi L.)

Ohio

E. W. Mendenhall (July 21): Many of the pussy willows in the nurseries in Clark County are infested with the mottled willow borer.

ROSE

ROSE SAWFLY (Calirona aethiops Fab.)

Indiana

J. J. Davis (July 27): The rose slug was reported abundant at Spiceland and South Bend June 27 and Valparaiso July 23.

Nebraska M. H. Swenk (June 15-July 15): The rose slug was considerably complained of in southern Nebraska during the period from June 16 to 28.

A ROSE GALL (Rhodites nebulosus Bass.)

Nebraska M. H. Swenk (June 15-July 15): During the period from June 16 to 28, reports of infestations of roses by the galls Rhodites nebulosus were received.

SPIRAEA

A BUTTERFLY (Lycaenopsis pseudorgiolus B. & L.)

Ohio E. W. Mendenhall (July 14): The spiraea plants in the nurseries at Brandt, Miami County, were infested with the common blue Lycaena ladon and caused some damage.

SPIRAEA APHID (Aphis spiraeicola Patch)

Indiana J. J. Davis (July 27): Aphids were abundant on spiraea at LaFayette during June and July and at Greentown July 4.

I N S E C T S A T T A C K I N G M A N A N D
D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicidae)

Indiana J. J. Davis (July 27): Mosquitoes were very abundant at LaFayette and Muncie early in July according to reports received.

Georgia O. I. Snapp (July 20): Mosquitoes are troublesome earlier than usual this year. Frequent rains are probably the cause.

FLEAS (Ctenocephalus spp.)

General F. C. Bishopp (June): Reports of infestations of houses and yards with dog and cat fleas have been received from Pennsylvania, Maryland, New Jersey, New York, and South Carolina.

Ohio T. H. Parks (July 23): More questions and appeals for help in controlling fleas have reached us than for several years. Open sheds, lawns, and living rooms are all listed as breeding places. (Both dog and cat fleas were included in the reports.)

Indiana J. J. Davis (July 27): Fleas reported the past month from Greensburg, LaFayette, Beech Grove, Warsaw, and Crawfordsville. One infestation at LaFayette July 25 was reported as occurring in the lawn.

Illinois

W. P. Flint (July 21): As is usually the case during the summer months, numerous requests are being received for assistance in cleaning up outbreaks of fleas.

Georgia

E. L. Worsham (July 23): Cat and dog fleas have been invading residences in Atlanta much more frequently than ever observed before.

CATTLE

NORTHERN CATTLE GRUB (Hypoderma bovis DeG.)

New York

F. C. Bishopp and H. M. Brundrett (June 21-30): Although the average number of grubs per animal in dairy herds near Schenectady and Utica is comparatively low, the average ranging from 1/2 to 6 per head, there are still a number of cattle with moderate infestations (maximum 27 grubs in one host). The cloudy, rainy weather has reduced annoyance from heel flies, but running of herds has been observed on sunny days. A few third-instar larvae were found in the backs of cattle on June 30, which is an unusually late date for grubs to be coming to the subdermal tissues.

HORN FLY (Haematobia irritans L.)

New York

F. C. Bishopp (June 21-30: Horn flies are now causing some annoyance to dairy cattle around Schenectady and Utica, and a few dairymen have begun to use sprays. The average number per animal is about 150, with a range from 20 to 1,500.

Indiana

J. J. Davis (July 27): Cattle flies were causing considerable annoyance to dairy cattle at Indianapolis and Kendalville July 18 and 22.

SHORT-NOSED OX LOUSE (Haematopinus eurysternus Nitz.)

New York

F. C. Bishopp (June 22): Some trouble from infestations of grown cattle is being experienced in the vicinity of Schenectady. The lice are most abundant in the ears, but are also scattered over the cattle.

HORSE FLY (Tabanus lasiophthammus Macq.)

New York

F. C. Bishopp (June 22): Tabanids are causing considerable annoyance to dairy cattle in certain pastures around Schenectady.

TURKEYS

BIRD TICK (Haemaphysalis chordeilis Pack.)

Michigan

F. C. Bishopp (June 19): A report has been received from Michigan that this tick began to attack turkeys on this date.

HOUSEHOLD AND STORED -

PRODUCTS INSECTS

TERMITES (Reticulitermes sp.)

- Indiana J. J. Davis (July 27): White ants were reported as destructive at Crawfordsville and Connersville late in June. At Lafayette they were reported tunneling stalks of dahlia July 23.
- Kansas J. W. McColloch (July 20): Since my last report termite injury to dwellings has been reported from Kansas City, Abilene, Galena, Rose Hill, and Savonbery. Damage to trees was reported from Pratt.
- California Washington Daily News July 27: A recent survey conducted throughout southern California by Alfred Ansell Jr., a Los Angeles scientist, revealed a property damage estimated at \$209,000 in 14 cities and towns included in the survey. The damage to individual buildings ranged from a few dollars to \$1,500. One example of damage was revealed when a huge wooden cover on a 100,000 gallon oil tank collapsed; it was found honeycombed with termites. Stepping into a closet after his coat, a man suddenly found himself falling through the floor; termites had eaten away the supports. In another town a woman was having her piano moved across a room when one end broke through a termite-damaged floor.

POWDER POST BEETLES (Lyctus spp.)

- Wisconsin E. L. Chambers (July 25): The proprietor of a summer resort in Bayfield County reported that several log cabins built last winter have shown evidence this summer of an extremely heavy infestation of the powder post beetles despite all precaution taken to avoid it.
- Kansas J. W. McColloch (June 21): These beetles are working in the oak pews of a church and have been present in these pews for nine years.

ANTS (Formicidae)

- Indiana J. J. Davis (July 27): We continue to receive reports of an abundance of ants in lawns and gardens from all sections of the State.
- Illinois W. P. Flint (July 21): The warm, wet weather of the present summer has been very favorable to the activities of a number of common species of ants. Numerous reports of invasions of houses particularly by Lasius niger americanus and Tapinoma sessile, have been received.

Nebraska

M. H. Swenk (June 15-July 15): House ants of several species were complained of to an unusual extent during the period covered by this report, and especially during early July.

CIGARETTE BEETLE (Lasioderma serricornis Fab.)

Kansas

J. W. McColloch (July 15): The cigarette beetle is infesting mohair furniture in a dwelling at Kansas City.

CARPET BEETLE (Anthrenus scrophulariae L.)

Nebraska

M. H. Swenk (June 15-July 15): ^C Carpet beetles were complained of to an unusual extent during the period covered by this report, Anthrenus scrophulariae being the most prominent.

1. The first part of the report is a general
description of the project and its objectives.

2. The second part is a detailed description of the
methodology used in the study.

3. The third part is a description of the results
of the study.

4. The fourth part is a discussion of the results
and their implications.